

What is claimed is:

1. A service retrieval apparatus which provides a retrieval service for retrieving a service provided by a server connected to a network in response to a request from a client and returning
5 a result of the retrieval, comprising:

retrieval means which sets retrieval conditions according to the request from said client and retrieves a service based upon the set retrieval conditions; and

retrieval result judgment means which judges whether or not
10 a result of the retrieval by said retrieval means satisfies judgment criteria set in advance,

wherein, when it is judged by said retrieval result judgment means that the retrieval result does not satisfy the judgment criteria, said retrieval means changes the retrieval conditions
15 and performs retrieval again.

2. The service retrieval apparatus according to claim 1,

wherein, when it is judged by said retrieval result judgment means that the number of services included in the retrieval result
20 has not reached the lower limit number of services set as the judgment criteria, said retrieval means changes the retrieval conditions so as to be wider and performs retrieval again.

3. The service retrieval apparatus according to claim 2,

wherein said retrieval means performs retrieval with respect
25 to a new retrieval range excluding the range for which retrieval has already been performed.

4. The service retrieval apparatus according to claim 1,
wherein, when it is judged by said retrieval result judgment
means that the number of services included in the retrieval result
has exceeded the upper limit number of services set as the judgment
5 criteria, said retrieval means changes the retrieval conditions
so as to be narrower and performs retrieval again.

5. The service retrieval apparatus according to claim 4,
wherein said retrieval means performs retrieval with respect
10 to a new retrieval range excluding the range for which retrieval
has already been performed.

6. The service retrieval apparatus according to claim 4,
wherein said retrieval means performs narrowing-down
15 retrieval of the range for which retrieval has already been
performed.

7. The service retrieval apparatus according to claim 1, further
comprising reply means which rearranges the result of the retrieval
20 by the retrieval means based upon values with respect to attribute
items included in the retrieval conditions, and then returns the
retrieval result to said client.

8. A plurality of service retrieval apparatuses which provide
25 a retrieval service for retrieving a service provided by a server
connected to a network in response to a request from a client and
returning a result of the retrieval, comprising:

a service information database which stores service information including address information and installation position information of said server and attribute information of a service provided by said server;

5 a service retrieval apparatus database which, when said network is divided into a plurality of sub-networks, stores address information and installation position information of a service retrieval apparatus with each sub-network included in a retrieval range;

10 retrieval range setting means which, by retrieving said service retrieval apparatus database based upon inputted retrieval conditions, specify one or more service retrieval apparatuses conforming to the retrieval conditions and set sub-networks, which correspond to said specified service retrieval apparatuses, as
15 a retrieval range for the request;

retrieval means which causes said retrieval range setting means to set a range for retrieval in response to a request from said client and requests its own service retrieval apparatus or other service retrieval apparatuses included in the set retrieval
20 range to perform retrieval to thereby execute service retrieval;
and

retrieval result judgment means which judges whether or not a result of the retrieval by said retrieval means satisfies judgment criteria set in advance,

25 wherein, when it is judged by said retrieval result judgment means that the retrieval result does not satisfy the judgment criteria, said retrieval means changes the retrieval range

corresponding to the request from said client and performs retrieval again.

9. The service retrieval apparatuses according to claim 8,
5 wherein, when it is judged by said retrieval result judgment means that the number of services included in the retrieval result has not reached the lower limit number of services set as the judgment criteria, said retrieval means changes the retrieval conditions according to the request from said client so as to be wider and
10 performs retrieval again.

10. The service retrieval apparatuses according to claim 9,
wherein said retrieval means performs retrieval with respect to a new retrieval range excluding the range for which retrieval
15 has already been performed.

11. The service retrieval apparatuses according to claim 8,
wherein, when it is judged by said retrieval result judgment means that the number of services included in the retrieval result
20 has exceeded the upper limit number of services set as the judgment criteria, said retrieval means changes the retrieval conditions corresponding to the request from said client so as to be narrower and performs retrieval again.

25 12. The service retrieval apparatuses according to claim 11,
wherein said retrieval means performs retrieval with respect to a new retrieval range excluding the range for which retrieval has already been performed.

13. The service retrieval apparatuses according to claim 12,
wherein said retrieval means performs narrowing-down
retrieval of the range for which retrieval has already been
5 performed.

14. The service retrieval apparatuses according to claim 8,
further comprising reply means which rearranges the result of the
retrieval by said retrieval means based upon values with respect
10 to attribute items included in the retrieval conditions, and then
returns the retrieval result to said client.

15. A client apparatus which retrieves a service provided by a
server connected to a network in response to a service retrieval
15 request and sends the service retrieval request to a service
retrieval apparatus providing a retrieval service for returning
a result of the retrieval, comprising:

retrieval result receiving means which receives a retrieval
result sent from said service retrieval apparatus in response to
20 the service retrieval request;

selection means which selects an attribute item, magnitudes
of which can be compared, from attribute items included in retrieval
conditions of the service; and

output means which rearranges a plurality of items of service
25 information included in the retrieval result based upon values
of the attribute items selected by said selection means included
in each item of service information to output the service
information.

16. A service retrieval method which retrieves a service provided by a server connected to a network in response to a request from a client and returns a result of the retrieval, comprising:

5 a retrieval step of setting retrieval conditions in response to a request of the client and retrieves a service based upon the set retrieval conditions;

 a retrieval result judgment step of judging whether or not a result of the retrieval by said retrieval step satisfies judgment
10 criteria set in advance; and

 a reply step of returning the result of the retrieval by said retrieval means to said client,

 wherein, when it is judged by said retrieval result judgment step that the retrieval result does not satisfy the judgment
15 criteria, said retrieval step changes the retrieval conditions and performs retrieval again.

17. The service retrieval method according to claim 16,

 wherein, when it is judged by said retrieval result judgment
20 step that the number of services included in the retrieval result has not reached the lower limit number of services set as the judgment criteria, said retrieval step changes the retrieval conditions so as to be wider and performs retrieval again.

25 18. The service retrieval method according to claim 17,

 wherein said retrieval means performs retrieval with respect to a new retrieval range excluding the range for which retrieval has already been performed.

19. The service retrieval method according to claim 16,
wherein, when it is judged by said retrieval result judgment
step that the number of services included in the retrieval result
5 has exceeded the upper limit number of services set as the judgment
criteria, said retrieval step changes the retrieval conditions
so as to be narrower and performs retrieval again.

20. The service retrieval method according to claim 19,
10 wherein said retrieval step performs narrowing-down
retrieval of the range for which retrieval has already been
performed.

21. The service retrieval method according to claim 16, further
15 comprising a reply step of rearranging the result of the retrieval
by said retrieval step based upon values with respect to attribute
items included in the retrieval conditions, and then returns the
retrieval result to said client.